



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/597,534	06/20/2000	Michael J. Piatt	SPP258KPA	5984

7590 07/28/2005
Barbara Joan Haushalter
228 Bent Pines Court
Bellefontaine, OH 43311

EXAMINER

NGUYEN, MADELEINE ANH VINH

ART UNIT	PAPER NUMBER
----------	--------------

2626

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/597,534

Applicant(s)

PIATT ET AL.

Examiner

Madeleine AV Nguyen

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 8, 12 and 21-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 9-11 and 13 is/are allowed.
- 6) ☒ Claim(s) 14-16 is/are rejected.
- 7) ☒ Claim(s) 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to amendment filed on May 10, 2005.

Applicant cancels claim 8, 12, amends claims 1.

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been fully considered and are persuasive due to the amendment of claim 1. The rejection of claims 1-7, -9-11, 13 has been withdrawn.

2. Applicant's arguments for claim 14 have been fully considered but they are not persuasive.

a. Applicant remarks that Shin would not use the test sheets or any portion of a color test pattern on one of the test sheets "for determining the threshold for excessive ink coverage for the identified printer and substrate as in claim 14.

It is noted in the rejection of claim 14 that Shin fails to "directly" teach that the step of employing a portion of the color test pattern is for determining the threshold for excessive ink coverage. However, through further discussion, it is a matter of obviousness to determine the threshold of excessive ink coverage through the maximum range of ink coverage (Fig.3). Shin teaches "the colors of each of the patches of colors within a single test sheet are measured ..., to determine the characteristics of the colors generated on the test sheets in terms of R, B, G. These values are then input into a color range analyzer 68 which generates a graphical representation of the dynamic color range or the deposited inks for each of the test sheets 54 through 64." (col. 5,

Art Unit: 2626

lines 45-53), and “In one example, the color range analyzer 68 was used for generating values for a color range plot as illustrated in chromaticity diagram of Fig.3... The dynamic color range values were plotted and then compared in CIE $L^*a^*b^*$ space in order to see how each primary color (RGB and CMY) shift varied for each of the different media types.” (col. 6, lines 12-20). Thus, from Fig.3 we can determine the threshold for excessive ink coverage for the identified printer and substrate. In addition, any color range is obviously included an upper limit and a lower limit. Besides, the present invention teaches the prior art where upper ink limits for a few selected substrates were predefined by printer manufacturers (page 2, lines 1-5). Shin further teaches the determination of the maximum range of color gamut (col. 6, lines 36-39) and “a selection was made as a function of which of the media maximizes the dynamic range of ink and at the same time does not sacrifice any gamut” (col. 6, lines 64-66). In case of color shift that can result to excessive ink coverage, “the color output can be adjusted without changing the three dimensional color correction lookup table but instead by adjusting the TRC of the color shifted.” (col. 6, line 66 – col. 7, line 3). That can be interpreted as the step of re-calibrating (adjusting or modifying) a range of tone scale (TRC) to prevent excessive ink coverage or to “maximize the dynamic range of ink and at the same time does not sacrifice any gamut.”

b. Applicant remarks that nowhere in Shin is there any discussion of calibration of tone scale. Moreover, Shin does not in any way address the prevention of excessive ink coverage.

As discussed above, Shin teaches the step of adjusting the TRC of the color shifted (col. 6, line 64 – col. 7, line 8) or the step of modifying the tone reproduction curve table 90 (col. 9, lines 12-19). Again, the prevention of excessive ink coverage is interpreted as the step of

Art Unit: 2626

maximizes the dynamic range of ink, which includes a threshold for excessive ink coverage, and at the same time does not sacrifice any gamut so that the range of the ink cannot result to excessive ink coverage.

Therefore, the rejection of claims 14-16 is maintained.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (US Patent No. 6,351,320).

Concerning claims 14-16, Shin teaches a method of defining printer media an inking intensity compatibility as discussed in claim 1 above. Shin further teaches the step of employing a portion of the color test pattern for determining the dynamic color range of the deposited ink and re-calibrating a range of tone scale to prevent the excessive ink coverage for the plurality of inks on the identified substrate. Shin further teaches that each test sheet has 1,000 patches of colors for each of a plurality of media types, wherein the ink coverage levels span a range of ink coverage for a variety of substrates (claims 15-16), (col. 5, lines 26-53; col. 6, line 12-35).

For claims 14-16, Shin fails to directly teach that the step of employing a portion of the color test pattern is for determining the threshold for excessive ink coverage and the recalibrating step is for recalibrating a range of tone scale to remain below the threshold of excessive ink

Art Unit: 2626

coverage. However, Shin teaches “the colors of each of the patches of colors within a single test sheet are measured ..., to determine the characteristics of the colors generated on the test sheets in terms of R, B, G. These values are then input into a color range analyzer 68 which generates a graphical representation of the dynamic color range or the deposited inks for each of the test sheets 54 through 64.” (col. 5, lines 45-53), and “In one example, the color range analyzer 68 was used for generating values for a color range plot as illustrated in chromaticity diagram of Fig.3... The dynamic color range values were plotted and then compared in CIE L*a*b* space in order to see how each primary color (RGB and CMY) shift varied for each of the different media types.” (col. 6, lines 12-20). Thus, from Fig.3 we can determine the threshold for excessive ink coverage for the identified printer and substrate. In addition, any color range is obviously included an upper limit and a lower limit. Besides, the present invention teaches the prior art where upper ink limits for a few selected substrates were predefined by printer manufacturers (page 2, lines 1-5). Shin further teaches the determination of the maximum range of color gamut (col. 6, lines 36-39) and “a selection was made as a function of which of the media maximizes the dynamic range of ink and at the same time does not sacrifice any gamut” (col. 6, lines 64-66). In case of color shift that can result to excessive ink coverage, “the color output can be adjusted without changing the three dimensional color correction lookup table but instead by adjusting the TRC of the color shifted.” (col. 6, line 66 – col. 7, line 3). That can be interpreted as the step of re-calibrating (adjusting or modifying) a range of tone scale (TRC) to prevent excessive ink coverage or to “maximize the dynamic range of ink and at the same time does not sacrifice any gamut.” Shin further teaches that determine the impact on the maximum range of color gamut, three different color correction lookup tables were generated using tetrahedral interpolation and

Art Unit: 2626

normalized tone reproduction curve (TRC) technique (col. 6, lines 36-39), and a selection was made as a function of which of the media maximizes the dynamic range of ink and at the same time does not sacrifice any gamut (col. 6, lines 64–66). Then, the tone reproduction curve is adjusted without changing the color correction lookup table to prevent the excessive ink coverage (col. 6, line 64 – col. 7, line 8). In addition, Fig.3 illustrates dynamic color range in CIE L*a*b* space for a plural number of different media types and Fig.4 illustrates graphically lightness change for the different media types of Fig.3. Thus, from these figures, we can determine the threshold of excessive ink coverage for the identified printer and substrate and the recalibrating of the TRC is for the range of tone scale to remain below the maximum range to prevent excessive ink coverage. It would have been obvious to one skilled in the art at the time the invention was made to consider the process of recalibrating the TRC for controlling the amount of inks on different substrates equivalent to the recalibrating a range of tone scale to remain below the threshold of excessive ink coverage as claimed since both of them have the same result of controlling the amount of ink or maximum range of ink in an identified printer and an identified substrate.

Allowable Subject Matter

3. Claims 1-7, 9-11, 13 are allowed.

The following is an examiner's statement of reasons for allowance: Claims 1-7, 9-11, 13 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior art which teaches a method of defining printer media and inking intensity compatibility in a printing

Art Unit: 2626

system comprising the steps of selecting one limiting condition that controls color ink and color substrate compatibility for an identified printer and an identified substrate; determining an upper ink limit for the identified substrate based on ink and substrate parameters in accordance with the one limiting ink condition; and using the upper limit to generate a tone scale to calibrate any ink color employed by the identified printer for printing on the identified substrate.

4. Claims 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 17-20 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior art which teaches a method of defining printer media and inking intensity compatibility in a printing system as stated in claim 1 wherein the color test pattern comprises a pattern which identifies when ink bleed is excessive, or when ink drying time is excessive, or when ink bleed through is excessive, or when paper curl is excessive, due to ink coverage exceeding the threshold for excessive ink coverage.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

Usami (US Patent No. 6,205,246) discloses a color transformation method by which transformation can be effected easily making maximum use of the reproduction range and

Art Unit: 2626

without causing any distortions in a color space while maintaining color and gradation balances between different conditions in different ranges of color reproduction.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

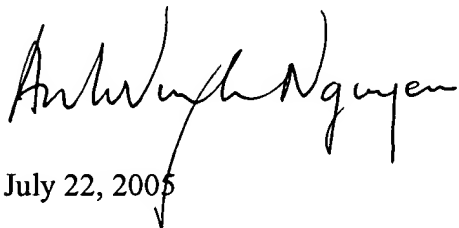
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Madeleine AV Nguyen whose telephone number is 571 272-7466. The examiner can normally be reached on Monday, Tuesday, Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A. Williams can be reached on 571 272-7471. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



July 22, 2005

Madeleine AV Nguyen
Primary Examiner
Art Unit 2626